NEW APPLICATIONS

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#611 - ROWLANDS

THE COUNCIL FOR TOBACCO RESEARCH - U.S.A.

August 2, 1967

MEMORANDUM

TO: The committee comprising Dr. Jacobson, Chm., Dr. Cattell and Dr. Bing.

FROM: Robert C. Hockett

SUBJECT: A new grant application from John R. Rowlands, Ph.D. - No. 611.

Enclosed herewith is a new project proposal with supporting material from John R. Rowlands, Ph.D. of Southwest Research Institute, San Antonio, Texas.

The preliminary investigations have shown an electron paramagnetic resonance (EPR) pattern believed to be produced by the interactions of free radicals and/or reactive diamagnetic molecules with a metal complex, presumably hemoglobin, present in the cells of rabbit lung tissues subjected to smoke. The exact nature of this interaction or bonding is not clear, but presumably entails covalent bonding to the sixth coordination site on the iron of hemoglobin - the same point at which oxygen is bound.

A study by Dr. John Waugh at M.I.T. has shown the EPR spectrum of interacted free radicals in the smoke condensate. He has not worked with lung tissue. He suggested the broad absorption may be due to a "two-electron triplet state" or to compounds and complexes of transition metals.

These studies are primarily definitive chemistry in approach. Further work will be necessary to define the interaction and suggest a means of separating the complex mixture undoubtedly involved.

The application has been under study for over a year and was distributed to the committee on March 29, 1967, but has not yet been considered by the S.A.B.

Robert C. Hockett
John H. Kreisher

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